

21st Century** Research and Technology **Fund

Indiana Economic Development Corporation

Sixth Report to the Indiana General Assembly

July 1, 2006 – June 30, 2007



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This report is available at www.21fund.org.



21st Century Research and Technology Fund

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The Indiana 21st Century Research and Technology Fund (21 Fund) was created in 1999 by the General Assembly to stimulate the process of diversifying the State's economy by developing and commercializing advanced technologies in Indiana. The 21 Fund was brought under the leadership and management of the Indiana Economic Development Corporation in 2005.



Indiana Economic Development Corporation

The Indiana Economic Development Corporation (IEDC) is the State of Indiana's lead economic development agency. The IEDC was officially established in February 2005 to support economic development efforts in the State of Indiana, replacing the former Department of Commerce. The IEDC is organized as a public-private partnership and is governed by a 12-member board of directors chaired by Governor Mitchell E. Daniels, Jr. The IEDC's chief mission is to attract new business to Indiana, support new business start-ups, and help existing Indiana businesses grow.



Letter from the Leadership

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Dear Legislator:

It is our pleasure to provide you the Sixth Report to the Indiana General Assembly on behalf of the Indiana 21st Century Research and Technology Fund (21 Fund) and the Indiana Economic Development Corporation.

During the past fiscal year—which began on July 1, 2006 and concluded on June 30, 2007—the 21 Fund made 17 awards totaling \$16,303,695 to Indiana companies to support the development and commercialization of a wide range of emerging innovative technologies with market-changing potential. The majority of these awards were centered on academic-commercial partnerships involving Indiana colleges and universities and innovative entrepreneurial Hoosier companies. During the two-year biennium, the 21 Fund made 38 awards totaling \$42,254,599 to Indiana companies.

These awards continue to spark exciting new research and serve as a critical catalyst for the development and commercialization of products in a wide variety of industries, including the life sciences, biotechnology, health care, information technology, alternative fuels, and advanced manufacturing. Over the next several years, we expect that these awards will result in the creation of thousands of new high-tech, high-wage Hoosier jobs, as the recipient companies grow and develop in Indiana.

In Fiscal Year 2006-07, the 21 Fund also made 41 Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) matching awards totaling \$3,740,208 to innovative high-tech Indiana companies. During the two-year biennium, the 21 Fund awarded 99 SBIR/STTR matching awards totaling \$9,166,155.68.

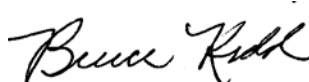
These awards are used by Indiana high-technology companies to help leverage and attract additional federal funds that support innovative research by Indiana's small businesses. 21 Fund and SBIR/STTR support enables Indiana's small businesses to more successfully compete for broader government funding for innovative processes and products, ultimately leading to more jobs in Indiana.

This report includes a complete list of 21 Fund awards and SBIR/STTR matching awards made in the 2006-07 fiscal year. In addition, we have included several profiles of Indiana companies that have received 21 Fund and SBIR/STTR awards and are already on their way to developing the cutting-edge products and the high-wage, high-tech jobs of tomorrow.

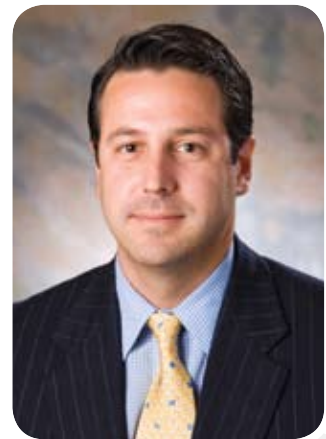
It is our pleasure to provide you with this report. Please do not hesitate to contact Linda Peterson-Roe at the IEDC if you have any questions.



Nathan J. Feltman
Secretary of Commerce



Bruce Kidd
IEDC Director of Entrepreneurship



21st Century Research and Technology Fund Overview

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Created by the Indiana General Assembly in 1999 and brought under the leadership of the Indiana Economic Development Corporation (IEDC) in 2005, Indiana's 21st Century Research and Technology Fund (21 Fund) focuses on entrepreneurial ventures that have demonstrated a market potential for commercialization of innovative technologies.

The 21 Fund provides financial support to highly innovative Indiana-based companies, thereby helping these firms make the transitional leap from general research and development to product development while also creating high-wage, high-skill, high-tech Indiana jobs and diversifying the state's economy.

The 21 Fund seeks technology-based companies conducting business in Indiana and provides financial support to make the transitional leap from early stage research to product development.

When the IEDC took over management of the 21 Fund, it made three major changes to the 21 Fund's operations and emphases. The IEDC:

- Shifted the focus of the Fund's investments from university-industry cooperative research projects to product development and testing initiatives led by high-tech start-up companies;
- Increased the emphasis on job creation as a criterion for making awards; and
- Supplemented the highly-respected technical review process with an enhanced business review.

The impacts of these changes were beginning to be realized through the activities of the 2005-07 biennium.

21 Fund Goals

The 21 Fund seeks technology-based companies conducting business in Indiana and provides financial support to make the transitional leap from early stage research to

product development. By supporting high-tech companies during this crucial stage, the 21 Fund encourages entrepreneurial success and keeps Indiana's most promising technologies in Indiana, leading to the creation of the high-tech, high-paying jobs of tomorrow.

The 21 Fund does not focus on a particular technology or application area in selecting awards. This allows Indiana's strengths to identify themselves through successful completion of the 21 Fund's rigorous review process. Avoiding pre-selection of technology focus areas ensures that the 21 Fund plays an unbiased central role in diversifying the State's economy, a goal outlined in the 21 Fund's legislation.

The 21 Fund encourages an environment of innovation and cooperation among Indiana universities and businesses to promote research activity through collaborative partnerships.

These partnerships build on the innovation process which converts research ideas into products, a process that in turn creates jobs for Indiana communities.

The 21 Fund has also set aside a portion of its budget for an SBIR Program Office, created to support companies that are applying for or have received federal Small Business Innovation Research (SBIR) and/or Small Business Technology Transfer (STTR) awards. This program is discussed in more detail later in this report.

In addition to the funds it provides, the IEDC's 21 Fund has hosted a variety of functions to educate potential applicants about the 21 Fund and raise awareness of unique investment opportunities, including an October 2006 reception, hosted by Governor Mitch Daniels, that brought together angel investors, venture capitalists and 26 recently funded start-up companies.

Application and Review Procedures

To qualify for a grant, each company must propose a technology or business idea that demonstrates innovation and clear potential commercial impact.

21st Century Research and Technology Fund Overview

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A project must create jobs and economic development for the State of Indiana and must be ready for commercialization within three to five years. Applicants are required to submit a detailed technical plan and concise business plan to illustrate the project's validity and likelihood of success. The merits of a proposed project are reflected in the thoroughness of the submitted technical roadmap and business plan.

Potential 21 Fund projects are initially screened by 21 Fund staff. They are then evaluated via a formal peer review process modeled after the National Institutes of Health and the National Science Foundation, directed at assessing the technical and business merits of the proposals.

This peer review involves evaluations by scientists and technology researchers from across the country and world. The peer review process now also involves economic experts who focus attention on job creation potential and other business-related metrics.

Before being selected as an award winner, proposals that successfully complete the 21 Fund's review process must be evaluated by the Entrepreneurship Subcommittee of the IEDC Board and also receive final funding approval from the Indiana State Budget Committee.

Impacts

The changes implemented by the IEDC not only affected the 21 Fund's goals and processes, but also influenced the 21 Fund's impact on the State of Indiana in terms of its awards and their outcomes.

In fiscal year 2006-07, the 21 Fund awarded 17 grants totaling \$16,303,695; during the 2005-07 biennium, the 21 Fund awarded 38 awards totaling \$42,254,599. Through these awards, the 21 Fund has demonstrated a dramatic shift toward primarily supporting small, entrepreneurial companies. In fact, 90 percent of the \$42.3 million awarded was granted directly to small companies, in contrast to the 23 percent of total funds directed to small firms in the years prior to the IEDC's management (1999-2005).

These recent 38 awards have considerable commercial potential. The most recent projections forecast that the recipient companies have the potential to create 5,000 new, highly compensated jobs in the next three to five years. In a May 2007 survey of all 21 Fund awards to date, award-ees reported that jobs already created through these recent awards have an average annual wage that is 80 percent higher than those jobs created through awards made before the 21 Fund was placed under the control of the IEDC.

The varied commercialization areas of the awards included Aerospace/Defense/Security, Advanced Manufacturing/Engineering, Communications/Electronics, Energy/Environment/Agriculture, Information Technology/Software Development and Life Sciences/Health Care. Clearly, the 21 Fund will continue to play a significant role in diversifying Indiana's economy.

Conclusion

The 21 Fund has seen marked changes in the 2005-07 biennium. Modifications of award criteria and related processes have resulted in 38 awards quite unlike the grants of the past.

While these awards have already created a significant number of jobs with above average earnings in small, high-tech companies, the majority of these projects are still early in their development; therefore, the full weight of their impacts has not yet been felt.

The IEDC looks forward to the year ahead as these current 38 awards continue to flourish and many more high potential new projects are initiated.

21 Fund Awards Fiscal Year 2006-07

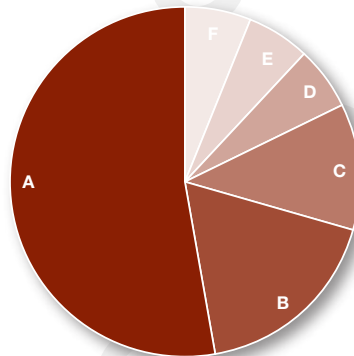
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Company	Industry	Award	City	County	Potential Jobs
Ceramic Interconnect Specialists	Communications/Electronics	\$ 1,075,000	West Lafayette	Tippecanoe	100
EmNet	Energy/Environment/Agriculture	\$ 1,054,247	Granger	St. Joseph	128
HealthCall	Information Technology/Software	\$ 1,200,000	Crown Point	Lake	188
IU Center of Excellence in Neuroimaging	Life Sciences/Health Care	\$ 2,000,000	Indianapolis	Marion	25
Kylin Therapeutics	Life Sciences/Health Care	\$ 250,000	West Lafayette	Tippecanoe	82
MedTG	Life Sciences/Health Care	\$ 350,000	Brazil	Clay	325
Morris Innovative Research	Life Sciences/Health Care	\$ 1,040,647	Bloomington	Monroe	85
Paul C. Krause & Associates	Information Technology/Software	\$ 2,000,000	West Lafayette	Tippecanoe	52
Optical Vitals	Life Sciences/Health Care	\$ 590,000	Indianapolis	Marion	3
Purdue: Microscale Cooling (Garimella)	Adv. Manufacturing/Engineering	\$ 1,899,503	West Lafayette	Tippecanoe	14
Sentelligence	Energy/Environment/Agriculture	\$ 400,000	Noblesville	Hamilton	100
Sentelligence 2	Energy/Environment/Agriculture	\$ 1,300,000	Noblesville	Hamilton	
SITES	Life Sciences/Health Care	\$ 1,000,000	Fort Wayne	Allen	175
Tracera	Life Sciences/Health Care	\$ 583,000	Zionsville	Boone	75
SonarMed	Life Sciences/Health Care	\$ 497,500	Indianapolis	Marion	42
VitaCyte	Life Sciences/Health Care	\$ 620,000	Indianapolis	Marion	85
Wolf Technical Services	Aerospace/Defense/Security	\$ 443,798	Indianapolis	Marion	46

21 Fund Awards Fiscal Year 2006-07

(Industry Sector Breakdown)

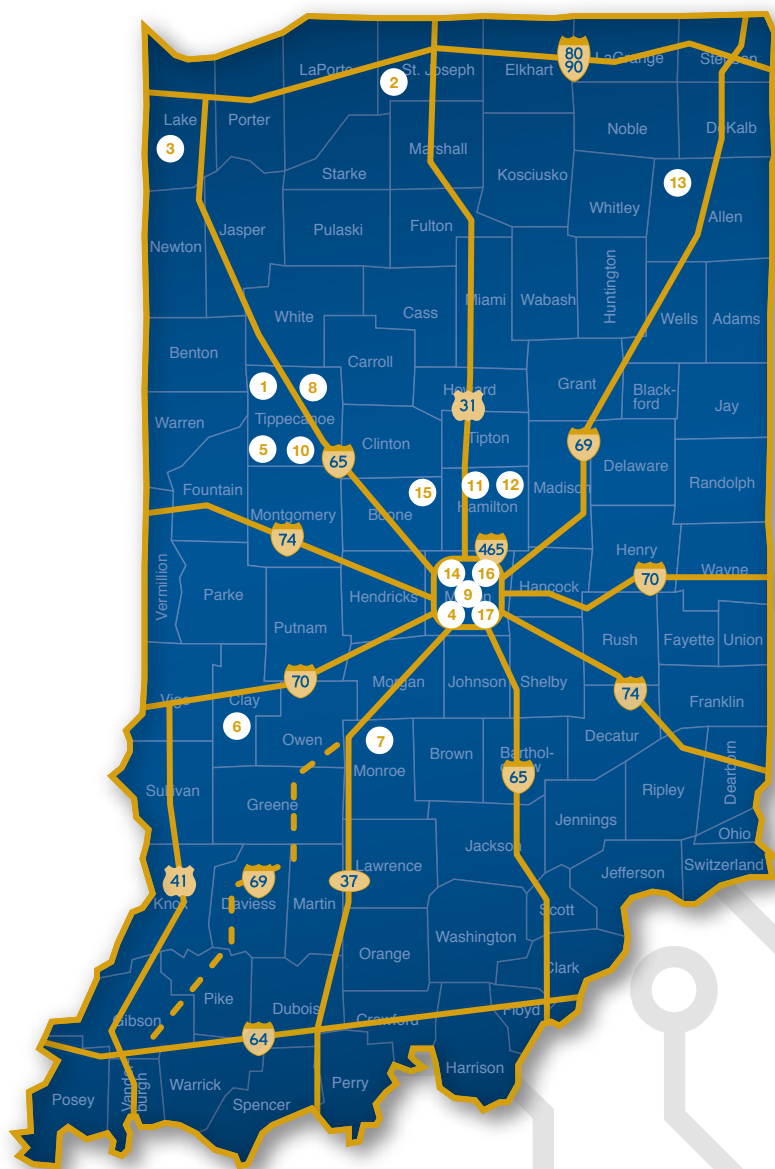
- A** Life Sciences/Health Care (9)
- B** Energy/Environment/Agriculture (3)
- C** Information Technology/Software Development (2)
- D** Aerospace/Defense/Security (1)
- E** Advanced Manufacturing/Engineering (1)
- F** Communications/Electronics (1)



21 Fund Recipient Company Locations Fiscal Year 2006-07

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1. Ceramic Interconnect Specialists
2. EmNet LLC
3. HealthCall
4. IU Center of Excellence in Neuroimaging
5. Kylin Therapeutics
6. MedTG
7. Morris Innovative Research
8. Paul C. Krause & Associates
9. Optical Vitals
10. Purdue: Microscale Cooling (Garimella)
11. Sentelligence
12. Sentelligence 2
13. SITES
14. SonarMed, Inc.
15. Tracera
16. VitaCyte
17. Wolf Technical Services



SBIR/STTR Overview

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The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs were created by Congress to stimulate technological innovation and provide opportunities for small business to participate in federally funded Research and Development (R&D).

These two competitively awarded, three-phase programs stimulate technological innovation, increase private sector commercialization of federal R&D, increase small business participation in federally funded R&D, foster participation by minority and disadvantaged firms in technology innovation, and provide collaborative opportunities for entrepreneurial small businesses at the nation's top colleges and universities.

In 2005, the IEDC established an independent SBIR Program Office as a concerted effort to increase Indiana's participation in the federal SBIR/STTR programs, to develop the full commercial potential of small Indiana businesses, and to support the growth of Indiana's high-technology workforce through the creation of high-skill, high-wage jobs.

In addition to continuing the 21 Fund's SBIR/STTR Phase I Matching Program, the IEDC has expanded support of later stage commercialization activities of Phase II SBIR/STTR awardees. These programs, which are directly supported by the IEDC, make awards through a set-aside of 20 percent of the 21 Fund's appropriation.

Both the SBIR and STTR programs address the technological needs of the participating federal agencies. After the submission of proposals, each participating agency issues awards based on a highly competitive merit review of company submissions.

SBIR Program Office

Indiana's SBIR Program Office supports statewide technological innovation through the development of focused collaborations and toolsets to build a strong Indiana

SBIR/STTR community. The operational goals of the SBIR Program Office are to: Increase the number of Phase I SBIR/STTR awards to Indiana entities; increase the transition rate of Indiana SBIR/STTR Phase I awards into Phase II and Phase III awards; and increase statewide awareness of these federal programs. These efforts ultimately will lead to more high-paying, high-technology jobs in Indiana.

To achieve these goals, the SBIR Program Office provides the following services to Indiana small, high-tech business:

- Proposal Development Assistance
- Proposal and Technical Pre-submission Reviews
- Support Letters to Federal Agencies
- SBIR/STTR Enhancement Program

In addition to the resources offered, the SBIR Program Office hosts a variety of workshops and seminars across the state throughout the year to acquaint small businesses with the SBIR/STTR process. Each workshop or seminar addresses a specific agenda, covering topics such as: an Introduction to the SBIR/STTR Process; Phase I and II Proposal Writing Techniques; Writing Successful Cost Proposals; Developing Successful Commercialization Plans; Government Accounting; and Defense Contract Audit Agency Audits.

In the 2005-07 biennium, the IEDC SBIR Program Initiative built a client list of more than 200 small companies.

The SBIR Program Office also distributes a monthly electronic newsletter. Tech Talk is an important source of up-to-date SBIR/STTR information, including: agency updates, solicitation information, a calendar of events, helpful hints, and a variety of success stories. To subscribe to and receive the e-newsletter, contact kbryant@iedc.in.gov and ask to be added to the distribution list.

SBIR/STTR Overview

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Program Office Mechanics

Upon initial contact with any company of interest, the SBIR Program Office provides detailed information to company officials about the SBIR/STTR program.

Through one-on-one discussions, assistance is provided to each company to determine the level of technological innovation, proposal preparation skills, qualifications of the team, level of support needed, and readiness of the company as a whole. This ultimately leads to a collaboratively defined SBIR/STTR project development strategy for the company and an implementation program that may include one or more of the SBIR/STTR program services.

The SBIR Program Office assists qualified applicants in preparing Phase I and/or Phase II SBIR/STTR applications by pairing them with established SBIR/STTR grant writers who provide assistance with proposal writing and formatting, effective team building, the electronic submission process, and detailed process outlining. The SBIR Program Office services also meet content and timing requirements, and formatting and/or technical review parameters of late-stage proposals by qualified experts.

In addition to these proposal preparation services, the SBIR Office provides support to companies that have received Phase I or Phase II SBIR/STTR awards through the SBIR/STTR Enhancement Program. This program involves two separate funding initiatives: The 21 Fund SBIR/STTR Phase I Matching Program; and the Indiana SBIR/STTR Commercialization Enhancement Program (ISCEP).

The 21 Fund Phase I Matching Program, which has been in existence since January 2003, is utilized to increase the numbers and competitiveness of Indiana SBIR/STTR proposals. The Matching Program provides an opportunity for companies to expand on their Phase I R&D to increase the likelihood of a transition from Phase I to Phase II.

The Matching Program provides companies with a dollar-for-dollar match of federal SBIR/STTR awards up to \$100,000. Phase I SBIR/STTR applicants may request an official 21 Fund Support Letter indicating to federal agen-

cies the existence of the Phase I matching program.

Recently, the SBIR Program Office has established the Indiana SBIR/STTR Commercialization Enhancement Program (ISCEP). The ISCEP is a competitive program to support the commercialization of new products and services created through SBIR and STTR research and development projects by enhancing Phase II SBIR/STTR awards.

Impacts

In fiscal year 2006-07, the IEDC awarded 41 21 Fund Phase I matches totaling \$3,740,208. During the 2005-07 biennium, the IEDC SBIR Program Initiative built a client list of more than 200 companies. These companies utilized a variety of IEDC services, including participation in 25 Proposal Assistance requests; 33 Proposal Reviews; eight Technical Reviews, 100 Support Letters, and 99 21 Fund Phase I Matches totaling \$9,166,156.

Since its inception, the Phase I Matching Program has increased the transition rate from Phase I into Phase II from between 20-30 percent to nearly 50 percent for Indiana small companies. This is a dramatic increase in just four years and is an essential accomplishment since each Phase II award is worth roughly eight times the amount of the initial Phase I award.

Conclusion

The IEDC's focus on federal SBIR/STTR programs is a reflection of its recognition that small/medium size technology businesses are the major high-tech employers of the future.

High-wage jobs developed in this sector have a disproportionate positive impact on Indiana's statewide average annual wage. The realignment of the focus of the 21 Fund and the enhancements of Indiana's SBIR/STTR efforts through the creation of the SBIR Program Office represent major steps toward strengthening Indiana's commercial landscape and increasing the number of high-skill, high-tech jobs in Indiana.

SBIR/STTR Awards Fiscal Year 2006-07

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Company	City	County	Award	Funding Agency
IBC Materials & Technology	Lebanon	Boone	\$ 99,895.53	DoD
CAE-net	Carmel	Hamilton	\$ 100,000.00	DoD
Arxan Research, Inc.	West Lafayette	Tippecanoe	\$ 99,212.00	DoD
Simulex, Inc.	West Lafayette	Tippecanoe	\$ 99,000.00	DoD
PreClinOmics, Inc.	Indianapolis	Marion	\$ 100,000.00	NIH
Arxan Research (Secure Software Rental System)	West Lafayette	Tippecanoe	\$ 98,417.00	NSF
Information In Place, Inc.	Bloomington	Monroe	\$ 100,000.00	DoD
MNB Technologies	Bloomington	Monroe	\$ 29,945.00	DoD
Arxan Research, Inc.	West Lafayette	Tippecanoe	\$ 99,823.00	DoD
Purdue (Defense Life Sciences)	West Lafayette	Tippecanoe	\$ 100,000.00	DoD
Next Wave Systems, LLC	Crown Point	Lake	\$ 98,993.00	DoD
PC Krause & Associates	West Lafayette	Tippecanoe	\$ 69,996.00	DoD
InSpace LLC	West Lafayette	Tippecanoe	\$ 98,480.00	DoD
InSpace LLC	West Lafayette	Tippecanoe	\$ 99,841.00	DoD
High Assurance Systems	West Lafayette	Tippecanoe	\$ 99,567.00	DHS
Focus Surgery, Inc.	Indianapolis	Marion	\$ 99,722.00	NIH
Omega Wireless Solutions	West Lafayette	Tippecanoe	\$ 79,970.00	DoD
Zeeko Technologies LLC	West Lafayette	Tippecanoe	\$ 62,279.00	NASA
Radiation Effects Research Associates	Bloomington	Monroe	\$ 98,501.00	DoD
Innovative Energy Solution	Crown Point	Lake	\$ 100,000.00	NSF
En'Urga, Inc.	West Lafayette	Tippecanoe	\$ 100,000.00	NSF
M4 Sciences Corp.	West Lafayette	Tippecanoe	\$ 100,000.00	NSF
The Academic Edge	Bloomington	Monroe	\$ 100,000.00	NIH
SHOT	Greenville	Floyd	\$ 69,963.00	DoD
Batch Process Technologies	West Lafayette	Tippecanoe	\$ 100,000.00	NSF
InSpace LLC	West Lafayette	Tippecanoe	\$ 97,481.19	NASA
Inphoton	Indianapolis	Marion	\$ 100,000.00	NIH
Technical Service Corporation	Bloomington	Monroe	\$ 79,937.44	DoD
SHOT	Greenville	Floyd	\$ 69,993.06	DoD
Adiabatics, Inc.	Columbus	Bartholomew	\$ 100,000.00	DoD
Wolf Technical Services	Indianapolis	Marion	\$ 69,906.00	DoD

Key:

DoD	Department of Defense
DHS	Department of Homeland Security
NASA	National Aeronautics & Space Administration
NIH	National Institute of Health
NSF	National Science Foundation

SBIR/STTR Awards Fiscal Year 2006-07 *(continued)*

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Company	City	County	Award	Funding Agency
Wavepoint Research, Inc.	Newburgh	Warrick	\$ 99,857.00	DoD
PC Krause & Associates	West Lafayette	Tippecanoe	\$ 99,935.00	DoD
PC Krause & Associates	West Lafayette	Tippecanoe	\$ 99,966.00	DoD
MNB Technologies	Bloomington	Monroe	\$ 79,578.05	DoD
Vyante	Indianapolis	Marion	\$ 100,000.00	NSF
Molecular Kinetics	Indianapolis	Marion	\$ 100,000.00	NIH
GH LLC	West Lafayette	Tippecanoe	\$ 100,000.00	NSF
PC Krause & Associates	West Lafayette	Tippecanoe	\$ 69,970.00	DoD
Mudawar Thermal Systems, Inc.	West Lafayette	Tippecanoe	\$ 69,980.00	DoD
Information In Place, Inc.	Bloomington	Monroe	\$ 100,000.00	NSF
Total For Fiscal Year 2007			\$3,740,208.27	

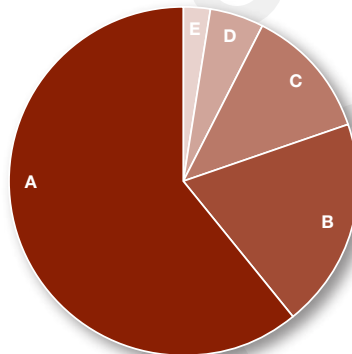
Key:

DoD	Department of Defense
DHS	Department of Homeland Security
NASA	National Aeronautics & Space Administration
NIH	National Institute of Health
NSF	National Science Foundation

SBIR/STTR Awards Fiscal Year 2006-07

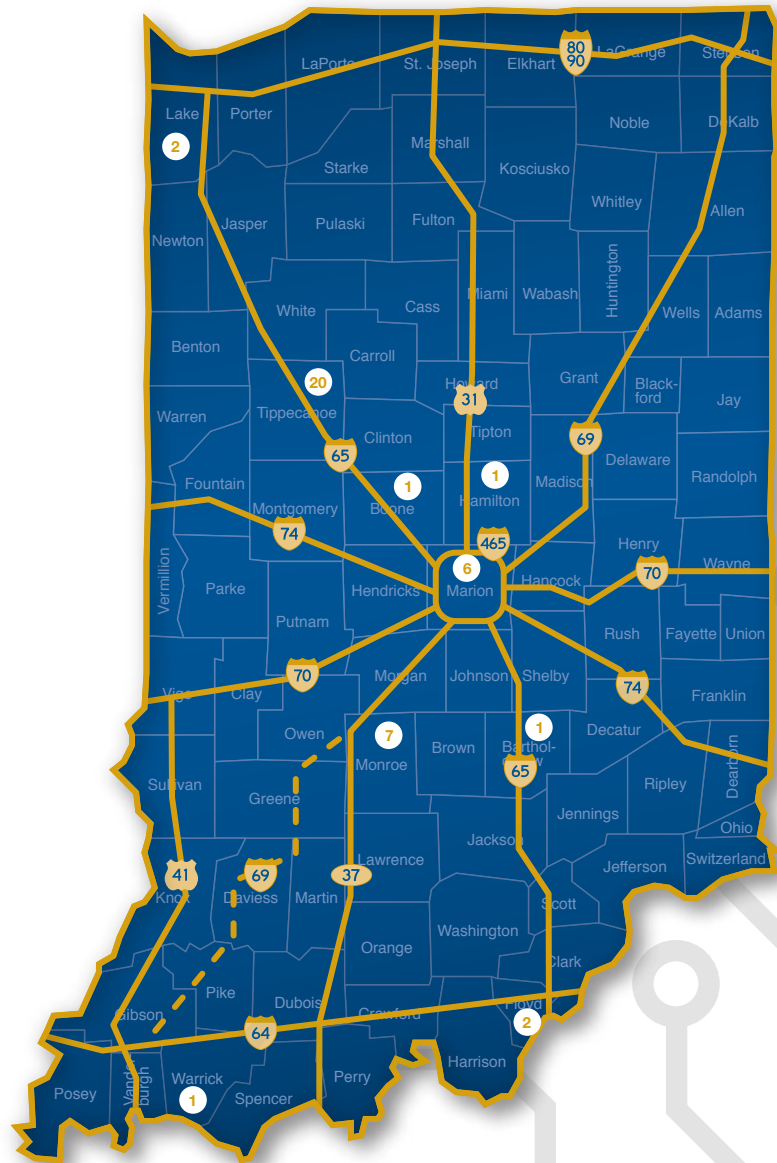
(Funding Agency Breakdown)

- A** Department of Defense (25)
- B** National Science Foundation (8)
- C** National Institute of Health (5)
- D** NASA (2)
- E** Department of Homeland Security (1)



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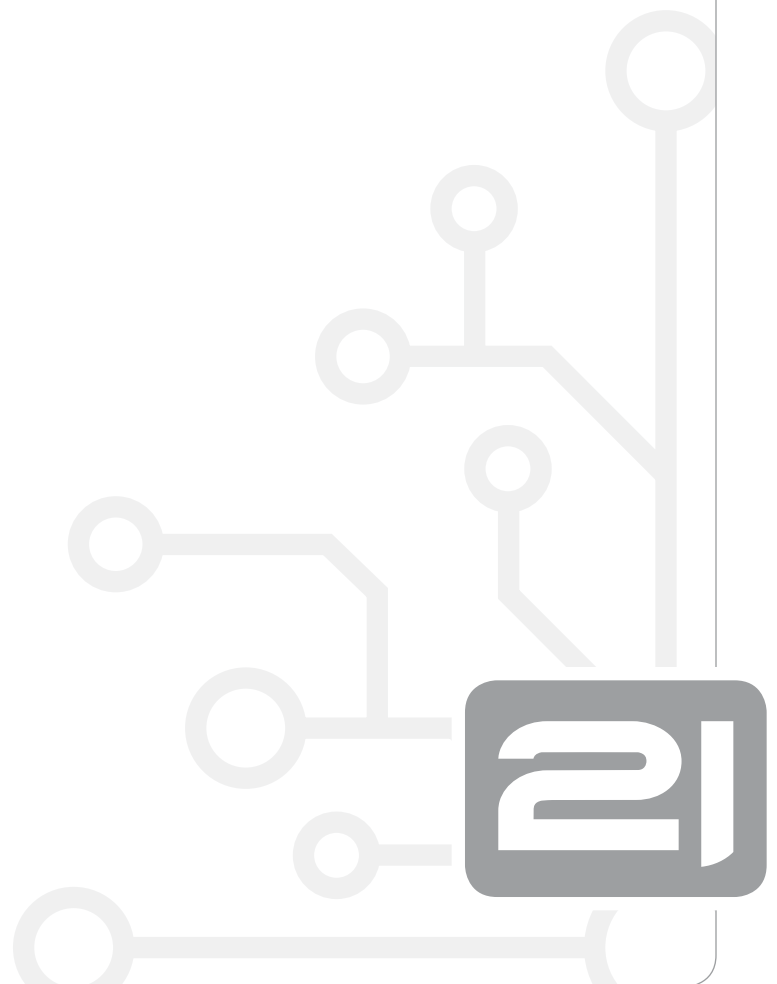
⑧— Number of recipient companies per county



21 Fund Awards SBIR/STTR Awards

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The following pages include success stories about some high-tech Indiana companies that have received 21 Fund Awards and SBIR/STTR Awards in the previous biennium.



EmNet LLC

21 Fund Award Recipient

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EmNet LLC is a leading developer of remote wireless monitoring systems, including a wireless network application that will measure and transmit data between any points on a wireless network.

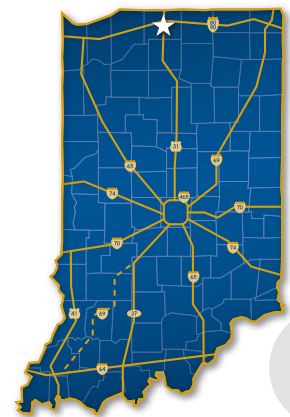
Headquartered in Granger, Ind., the company's priority is to develop wireless network applications with devices called Chasqui Nodes, which are wireless devices with sensing and actuating capabilities. Each node is capable of taking measurements and transmitting information between any points throughout the network.

EmNet received a \$1.05 million award from the 21st Century Research and Technology Fund in March 2007 to develop its unique CSOnet technology, an efficient and economic tool that utilizes a Wireless Networked Control System to monitor Combined Sewer Overflows (CSO). Combined Sewer Overflows occur when wet weather conditions overwhelm treatment plants that are forced to release raw sewage into rivers and lakes. To prevent it from backing up into homes and businesses, municipalities often divert the excess sewage directly into an open stream or river, thereby creating a CSO event.

Using embedded microprocessors, advanced low power radio networking, and distributed control algorithms, the CSOnet technology solution employs in-line storage to monitor and prevent sewer overflow. In-line storage taps the unused capacity of the sewer network to temporarily store excess water.

EmNet began as an initiative to integrate wireless sensor-control networks into important environmental problems. The company's primary focus is on Wireless Network Control Systems and Wireless Sensor Network Systems. The company collaborates closely with the University of Notre Dame, Purdue University as well as the city of South Bend, Ind.

EmNet was formed in 2004 as part of a \$1 million project from the 21 Fund and was able to raise additional follow-on funding of \$205,000. The company projects the creation of 128 jobs for Indiana residents.



I Power Energy Systems, LLC.

21 Fund Award Recipient

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I Power Energy Systems LLC is an Anderson, Ind., company that develops advanced systems for electric power generation equipment and power applications.



The start up firm designs and manufactures continuous-duty, on-site power generator systems that can work either with, or independently of, established utility grid systems. The manufactured units meet consumer demand for electric and thermal energy with the goals of high durability, low emissions and low noise.

Unlike traditional diesel power generators, IPower systems utilize multi-fuel energy sources to produce efficient electricity without polluting the environment.

The company's technology has the potential for application in many areas, including luxury apartments, health clubs, hotels and large retail stores – all of which have high demands for central hot water systems and reliable power sources. The company is committed to investing in the development of technology to meet the efficiency, environmental and economic challenges of the marketplace.

The company's mission is to lead the distributed Power Generation Industry with products that demonstrate world class efficiency, quality, and durability while limiting emissions.

The 21st Century Research and Technology Fund awarded I Power a grant of \$1.7 million in August 2006 to support the commercialization of a program that will improve power generation performance and lower costs associated with the development of distributed generation systems. It has since received \$42,350 in additional funding. I Power projects that future growth will enable it to create 125 new jobs in the Anderson area.

A large, light gray graphic of a circuit board with various circular nodes and connecting lines, spanning the bottom right portion of the page.

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Arxan Technologies, Inc.

21 Fund Award Recipient-SBIR/STTR Award Recipient

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World renowned for its superior intellectual property protection, Arxan Technologies, Inc., of West Lafayette, Ind., develops products that are used by tech-savvy businesses to prevent software piracy, tampering, reverse engineering and other kinds of high technology theft.

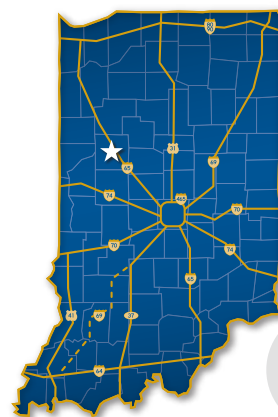
Arxan products help commercial firms protect their software, manage license agreements and provide Digital Rights Management, which is used by publishers or copyright owners to control access to or usage of digital data or hardware.

Arxan Technologies was formed in 2001 to commercialize advanced anti-tamper technology from Purdue University. Arxan today strives to establish Indiana as the world's leader in developing and commercializing anti-tamper technologies.

In May 2006, the 21 Fund awarded the company a grant of \$1.9 million to create a unique business with advanced anti-piracy software technology. Arxan also has received five separate SBIR grants, totaling \$495,425, for its state-of-the-art protection software, all of which were matched through the 21 Fund's SBIR/STTR Phase I matching program.

The company's EnforcIT product won the 2007 Customer Trust Global Product Excellence in Intellectual Property Protection Award from Info Security Products Guide, the world's leading publication on security-related products and technologies. EnforcIT is designed to protect from tampering critical military technology used in weapons, command and control, and flight control systems.

Arxan has also been named a finalist for the Red Herring 100 Award, which recognizes the top 100 leading private innovation and technology companies in North America. Since receiving the 21 Fund Award, Arxan has obtained \$14.5 million in additional funding. The company currently has 29 employees and plans to grow to 70 Indiana employees.



SonarMed, Inc.

21 Fund Award Recipient-SBIR/STTR Award Recipient

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SonarMed, Inc. is an Indianapolis-based early stage medical device company that develops innovative products to improve the clinical care of patients and reduce healthcare costs.

Created in 2005, SonarMed's state-of-the-art endotracheal (breathing) tube monitoring system, which is based on technology developed at Purdue University, provides continuous monitoring of tube position and function, giving health care professionals the ability to address potential problems in patients who cannot breathe on their own.

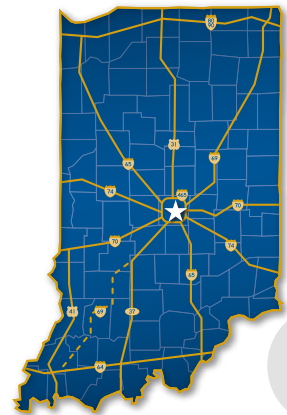
The system's unique features include accurate tube placement guidance and constant monitoring of tube position and blockages caused by mucus build up. Currently, there are no methods that can provide this information quickly, easily or cost-effectively. The SonarMed System has the potential to significantly improve the quality of care and reduce costs for patients in the intensive care unit, emergency room, operating room and in the field.

SonarMed received a \$500,000 award from the 21st Century Research and Technology Fund in June 2007 to conduct human clinical trials on its unique technology.

The company's long-term goal is to establish its system as the standard of care for all endotracheal intubations, although it will first target adult and neonatal intensive care markets due to strong need for both initial placement assistance and continuous monitoring.

SonarMed has received a combined \$950,000 in capital support from angel investors and venture capitalists as well as a total of \$1.1 million from SBIR and matching funds.

The company has contracted with a number of Indiana-based companies to help in the design and manufacture of its system, and projects the future creation of 42 jobs for Hoosiers.



IN Space LLC

SBIR/STTR Award Recipient

18

IN Space LLC is an aerospace research company located in West Lafayette, Ind., that develops, designs, and produces advanced propulsion technologies for space exploration, space commercialization, and national defense.

IN Space has received five Phase I SBIR/STTR awards and two Phase II STTR awards, as well as five 21st Century Fund Phase I matches. Ultimately, the awarded funds have supported facility and equipment upgrades, new software purchases, new parts fabrications, innovative testing, and the hiring of additional experts and consultants to enhance research and development.

In 2003, IN Space's first Phase I STTR award investigated the thermal decomposition mechanism of hydrogen peroxide for use in rocket propulsion and laser applications. With financial support from the IEDC and Northrop Grumman, the firm was awarded a Phase II STTR where the thermal decomposition mechanism lead them to use torch igniters to initiate combustion in a 10,000 lbf thrust class hydrogen peroxide and hydrocarbon-fuel rocket engine.

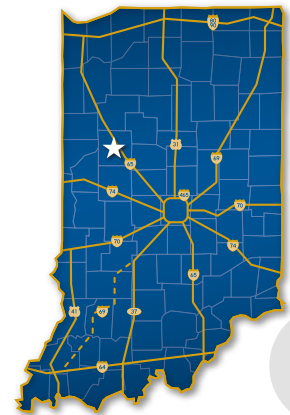
In 2004, IN Space was awarded a Phase I SBIR to examine injectors for divert thrusters on missile interceptors. This work generated a new injector design capable of highly efficient, stable combustion with a short startup transient.

In 2006, IN Space and Purdue University were awarded a Phase I STTR to improve the combustion stability of the next generation launch vehicle for the U.S. Air Force. IN Space and Purdue are using a combination of experimental and computation results to tailor the IN Space-Purdue Generalized Instability Model to produce an effective engineering design and analysis tool to prevent destructive and performance-robbing combustion instabilities from occurring. This work has recently been selected for a Phase II award and IN Space has received significant support from a large aerospace company.

That same year, IN Space and Purdue were awarded a Phase I STTR to investigate a new binder for solid propellant rocket motors to improve their insensitivity to unintended stimuli such as bullets, fragments and fire.

The most recent Phase I SBIR examines an innovative liquid rocket injector for liquid oxygen and liquid methane propellants in 100 lbf reaction control thrusters for the new Crew Exploration Vehicle. In preparation for the project's Phase II proposal, continual testing is currently performed at Purdue University's High Pressure Laboratory to develop a flightweight design for NASA.

In total, IN Space has received more than \$1.43 million in SBIR/STTR funding from the Department of Defense and NASA; and \$452,187 in Phase I 21st Century Research and Technology Fund matching awards.



PartTec, Ltd.

SBIR/STTR Award Recipient

19

PartTec, Ltd., a technology-based company focused on particle beam technologies, nanomaterials, and photonics, was created in 2002 by John Cameron, PhD and Herschel Workman, CPA, in Bloomington, Ind.



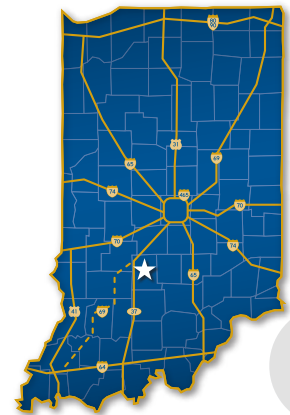
The company's initial mission was to partner with university scientists and seek project funding from the SBIR/STTR program. Since the acquisition of its first Phase I STTR proposal in 2003, PartTec has been awarded four Phase I SBIR and two Phase II SBIR grants.

Neutron science and technology, a core expertise within the company, is a rapidly growing field in the science, education, and homeland security areas. The product with which the awarded funds assisted, Crossed Fiber Neutron Scintillator Detectors, is now being manufactured for the Spallation Neutron Scattering Facility (SNS) in Oak Ridge, Tenn., and has applications in similar Neutron Scattering Facilities in the United States, Japan and soon, China.

The company currently employs eight scientists and technicians in facilities in Bloomington and Linton, Ind., and is expected to grow with increased demand for these detector systems.

In spring 2007, PartTec received two of three SBIR Matching grants issued by the State of Indiana to develop five times more efficient neutron scintillator detector materials using nanoparticles. If successful, these SBIR projects could result in new scientific discoveries at SNS and a significant manufacturing facility in southern Indiana.

PartTec has partnered with the Indiana University chemistry department to develop these nanoparticle materials, and this aggressive development program was made possible because of the availability of 21st Century Research and Technology Fund matching grants. The 21 Fund grants, along with the scientific leadership of CEO Workman, are contributing significantly to the establishment of PartTec as a quality manufacturer of scientific equipment in southern Indiana.



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